

ABSTRACT

It is necessary to stabilize the free layer of GMR or TMR devices by providing a longitudinal bias field. As read tracks become very narrow, this field can drastically reduce the strength of the output signal. This problem has been overcome by adding an additional bias layer. This layer, which may be located either above or below the conventional bias layer, is permanently magnetized in the opposite direction to that of the permanent magnets used to achieve longitudinal stability. Through control of the magnetization strength and location of this additional bias layer, cancellation of much of the field induced in the free layer by the conventional bias layers is achieved.